Effective Health Care

# Treatment of Upper Respiratory Tract Infections

## Results of Topic Selection Process & Next Steps

The nominator, the American Academy of Physician Assistants (AAPA), is interested in a new systematic review on complementary and alternative medicines (CAM) and over-the-counter (OTC) medications for symptomatic relief of common upper respiratory infections to inform clinician guidance. Due to limited program resources, the program is unable to develop a review at this time. No further activity on this topic will be undertaken by the Effective Health Care (EHC) Program.

## Topic Brief

**Topic Name:** Treatment of Upper Respiratory Tract Infections

**Topic #:** 0689

**Nomination Date:** 06/30/2016

**Topic Brief Date:** 01/23/2017

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**Conflict of Interest:** None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

**Summary of Key Findings:**

- Appropriateness and importance: The nomination is both appropriate and important.
- Duplication: An AHRQ product would not be duplicative. Though there are many evidence review covering parts of the scope of the nomination, there is no single evidence review examining the full scope of benefits and harms of OTC and CAM treatments in children and adults with upper respiratory tract infections. For key question 1, recent systematic reviews evaluated antihistamine-analgesic-decongestant combinations and NSAIDs in adults; benefits of decongestants, antihistamines, and nasal irrigation for acute sinusitis in children; and harms of popular treatments of common upper respiratory tract infections (URTI) in children. For key question 2, we identified recent systematic reviews examining the benefits and harms of various compounds of traditional Chinese medicines (TCM), Echinacea, saline nasal irrigation, Oscillococcinum, and heated and humidified air for treatment of common URTIs.
- Impact: Because there is a standard of care, but wide practice variation, an evidence review on OTC and CAM treatments for upper respiratory tract infections would have moderate to low impact.
- Feasibility: An AHRQ product would be small, but feasible.

    - *Size/scope of review:* Our searches of PubMed resulted in a total of 405 unique titles. Upon title and abstract review, we identified a total of 30 published studies potentially relevant to the key questions in the nomination. Based on an inclusion percentage of 100%, the expected number of relevant studies published between July 2011 and July 2016 may be 30 across all key questions.
    - *Clinicaltrials.gov:* We identified 10 ongoing trials on ClinicalTrials.gov, 8 of which examined OTC interventions for URTIs.
- Value: The potential for value is unknown, given that the AAPA will share with their members the evidence review findings and suggest using the information in their daily practice, but have no current plans to for other dissemination or products to promote adoption in practice, such as a clinical practice guideline or practice parameter.

## Table of Contents

## Introduction

In the US, acute respiratory infections account for 221 antibiotic prescriptions per 1,000 annually, but only about half of these are considered to be appropriate.[1] Practice guidelines recommend against using antibiotics for patients who have the common cold and for most patients who have pharyngitis, bronchitis or sinusitis. Clinicians cite patient pressure and customer satisfaction as major reasons for inappropriate prescribing.[2] According to an AHRQ evidence report published in January 2016, evidence supports a few interventions to reduce inappropriate antibiotic prescribing.[3] Although not studied formally, offering a convincing alternative to antibiotics is considered to be part of a reasonable strategy to reduce inappropriate prescribing. According to the nominator, however, there are no other straightforward alternatives to antibiotic treatment. Codeine syrups, various inhalers, acetaminophen, and many other over-the-counter remedies, and measures such as humidification of air, intake or avoidance of certain foods, are widely used, but their effectiveness is unclear. The nominator believes that an evidence report that identified which alternatives have the strongest evidence for a benefit would inform physicians about their options, and optimize patient outcomes by minimizing unnecessary exposure to antibiotics.

Topic nomination #0689 was received on June 30, 2016. It was nominated by the American Academy of Physician Assistants (AAPA). Due to the broad scope of the original nomination, AAPA narrowed the scope to focus on specific interventions and populations. The questions for this nomination are:

Key Question 1. What are the benefits and harms of over-the-counter medications in providing the clearest benefit of symptom resolution for common acute respiratory infections (eg, sinusitis, pharyngitis, common cold, or otitis media)?

Key Question 2. What are the benefits and harms of complementary and alternative medications (CAM) in providing the clearest benefit of symptom resolution for common acute respiratory infections (eg, sinusitis, pharyngitis, common cold, or otitis media)?

To define the inclusion criteria for the key questions we specify the population, interventions, comparators, and outcomes, (PICOs) of interest. See Table 1.

**Table 1.** Key Questions with PICOs

| **Key Questions** | 1. What are the benefits and harms of over-the-counter medications in providing the clearest benefit of symptom resolution for common acute respiratory infections (eg, sinusitis, pharyngitis, common cold, or otitis media)? | 2. What are the benefits and harms of complementary and alternative medications (CAM) in providing the clearest benefit of symptom resolution for common acute respiratory infections (eg, sinusitis, pharyngitis, common cold, or otitis media)? |
|---|---|---|
| **Population** | Adults and children with an upper respiratory tract infection | Adults and children with an upper respiratory tract infection |
| **Interventions** | OTC interventions, including but not limited to: analgesics, nasal and oral antihistamines and decongestants, cough suppressants, and expectorants | CAM interventions, including but not limited to: traditional Chinese medicine, saline, zinc, vitamin C, Echinacea, oil of oregano, and other homeopathic remedies. |
| **Comparators** | Any comparator | Any comparator |
| **Outcomes** | Resolution of symptoms<br>Harms of treatment | Resolution of symptoms<br>Harms of treatment |

*Abbreviations:* CAM=Complementary and Alternative Medicine; OTC=Over-the-Counter

# Methods

To assess topic nomination *#0689 Treatment of Upper Respiratory Tract Infections* for priority for a systematic review or other AHRQ EHC report, we used a modified process based on established criteria. Our assessment is hierarchical in nature, with the findings of our assessment determining the need for further evaluation. Details related to our assessment are provided in Appendix A.

1. " Determine the *appropriateness* of the nominated topic for inclusion in the EHC program.
2. " Establish the overall *importance* of a potential topic as representing a health or " healthcare issue in the United States. "
3. " Determine the *desirability of new evidence review* by examining whether a new " systematic review or other AHRQ product would be duplicative. "
4. " Assess the *potential impact* a new systematic review or other AHRQ product.
5. " Assess whether the *current state of the evidence* allows for a systematic review or other AHRQ product (feasibility).
6. " Determine the *potential value* of a new systematic review or other AHRQ product.

## Appropriateness and Importance

We assessed the nomination for appropriateness and importance (see Appendix A).

## Desirability of New Review/Duplication

We searched for high-quality, completed or in-process evidence reviews pertaining to the key questions of the nomination. Table 2 includes the citations for the reviews that were determined to address the key questions. Appendix B includes the list of the sources searched and potentially relevant titles identified by our research librarian.

## Impact of a New Evidence Review

The impact of a new evidence review was assessed by analyzing the current standard of care, the existence of potential knowledge gaps, and practice variation. We considered whether it was hypothetically possible for this review to influence the current state of practice through various dissemination pathways (practice recommendation, clinical guidelines, etc.).

## Feasibility of New Evidence Review

We conducted a literature search in PubMed from July 2011 and July 2016. Because a small number of articles were identified, we reviewed all abstracts for inclusion and classified identified studies by study design, to assess the size and scope of a potential evidence review. See *Table 2, Feasibility Column, Size/Scope of Review Section* for the citations of included studies. See Appendix C for the PubMed search strategy and links to the ClinicalTrials.gov search.

## Value

We assessed the nomination for value (see Appendix A). We considered whether or not the topic would inform clinical policy in community and/or clinical settings, and if there was a partner organization that would use this evidence review to influence practice.

## Compilation of Findings

We constructed a table outlining the selection criteria as they pertain to this nomination (see Appendix A).

# Results

## Appropriateness and Importance

This is an appropriate and important topic. Antibiotic use is the single most important factor contributing to antibiotic resistance.[4] In addition, up to half of antibiotic use among outpatients in the United States is inappropriate.[1] Finding alternative treatments for these common ailments may be able to slow the rise of antibiotic resistance.

### Desirability of New Review/Duplication

A new evidence review examining treatments for upper respiratory tract infections would not be duplicative. We identified four Cochrane evidence reviews (2012,[5] 2013,[6] 2014,[7] and 2015[8]) and one other evidence review (2012[9]) examining over-the-counter medications for treating symptoms of upper respiratory tract infections (KQ 1).

We identified six Cochrane evidence reviews (2012,[10] two in 2013,[11,12] 2014,[13] and two in 2015[14,15]) and three other evidence reviews (2013,[16] 2014,[17] and 2015[18]) examining complementary and alternative medications for treating symptoms of upper respiratory tract infections (KQ 2).

Though there are many evidence review covering parts of the scope of the nomination, there is no single evidence review examining the full scope of benefits and harms of OTC and CAM treatments in children and adults with upper respiratory tract infections.

### Impact of a New Evidence Review

A new systematic review on the proposed topic has moderate to low impact potential due to the lack of current and consistent guidance on the effectiveness of common OTC and CAM treatments for common URTIs. While there are no comprehensive systematic reviews, and a small library of original search, we are unsure of the quality of available evidence, and its ability to inform changes in practice or in practice variation.

### Feasibility of a New Evidence Review

A new systematic review examining treatments for upper respiratory tract infections is feasible at this time. Our PubMed search results in 30 relevant studies that have been published in the last five years. There was very little depth in any particular intervention; we identified only 1-2 studies for each intervention.

We identified seven published studies examining OTC treatments (KQ 1) for upper respiratory tract infections.[19-25] These treatments include aspirin, diphenhydramine, NSAIDs, and pseudoephedrine, among others. We also identified eight clinical trials, of which one is currently recruiting[26] and seven have recently completed.[27-33]

We identified 23 published studies examining CAM treatments (KQ 2) for URTIs.[34-56] We also identified two clinical trials, both of which are currently recruiting participants.[57,58]

**Table 2.** Key questions with the identified corresponding evidence reviews and original research

| Key Question | Duplication (Completed and In-Process Evidence Reviews) | Feasibility (Published and Ongoing) |
|---|---|---|
| KQ 1: Over-the-Counter Medications | Total number of completed or in-progress systematic reviews - 5<br>• Cochrane Review – 4[5-8]<br>• Other – 1[9] | Size/scope of review<br>Relevant Studies Identified: 7[19-25]<br>• Meta-Analysis of RCTs – 1[19]<br>• RCT – 4[21,22,24,25]<br>• Prospective Cohort – 2[20,23]<br><br>ClinicalTrials.gov<br>Relevant Trials: 8<br>• Recruiting – 1[26]<br>• Complete – 7[27-33] |

| | | |
|---|---|---|
| KQ 2: Complementary and Alternative Medications | Total number of completed or in-progress systematic reviews – 10<br>• Cochrane - 7[10-15,59]<br>• Other – 3[16-18] | Size/scope of review<br>Relevant Studies Identified: 23[34-56]<br>• Efficacy Analysis – 1[42]<br>• RCT – 11[34,37-40,43,49,51,52,55,56]<br>• n-RCT – 1[54]<br>• Pre-Post – 1[41]<br>• Longitudinal Case-Control – 1[36]<br>• Observational – 5[46-48,53]<br>• Prospective Open-Label – 2[35,50]<br>• Case Series – 1[44]<br><br>ClinicalTrials.gov<br>Relevant Trials: 2<br>• Recruiting – 2[57,58] |

*Abbreviations:* KQ=Key Question; n-RCT=non-Randomized Controlled Trial; RCT=Randomized Controlled Trial

### Value

The potential for value is unknown, given that the AAPA will make their members known of the results of an evidence review and suggest using the information in their daily practice, but have no current plans to create guidelines or practice parameters.

## Summary of Findings

- Appropriateness and importance: The nomination is both appropriate and important.
- Duplication: An AHRQ product would not be duplicative. Though there are many evidence review covering parts of the scope of the nomination, there is no single evidence review examining the full scope of benefits and harms of OTC and CAM treatments in children and adults with upper respiratory tract infections. For key question 1, recent systematic reviews evaluated antihistamine-analgesic-decongestant combinations and NSAIDs in adults; benefits of decongestants, antihistamines, and nasal irrigation for acute sinusitis in children; and harms of popular treatments of common upper respiratory tract infections (URTI) in children. For key question 2, we identified recent systematic reviews examining the benefits and harms of various compounds of traditional Chinese medicines (TCM), Echinacea, saline nasal irrigation, Oscillococcinum, and heated and humidified air for treatment of common URTIs.
- Impact: Because there is a general standard of care, but wide practice variation, an evidence review on OTC and CAM treatments for upper respiratory tract infections would have moderate to low impact.
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# Appendices

**Appendix A: Selection Criteria Summary** !

**Appendix B: Search Strategy & Results (Feasibility)**

## Appendix A. Selection Criteria Summary (

| Selection Criteria | Supporting Data |
|---|---|
| 1. Appropriateness | |
| 1a. Does the nomination represent a health care drug, intervention, device, technology, or health care system/setting available (or soon to be available) in the U.S.? | Yes, this topic represents a health care drug and intervention available in the U.S. |
| 1b. Is the nomination a request for a systematic review? | Yes, this topic is a request for a systematic review. |
| 1c. Is the focus on effectiveness or comparative effectiveness? | The focus of this review is on effectiveness. |
| 1d. Is the nomination focus supported by a logic model or biologic plausibility? Is it consistent or coherent with what is known about the topic? | Yes, it is biologically plausible. Yes, it is consistent with what is known about the topic. |
| 2. Importance | |
| 2a. Represents a significant disease burden; large proportion of the population | Yes, this topic represents a significant burden. The AAPA states that antibiotic use is the single most important factor contributing to antibiotic resistance. In addition, AAPA states that up to half of antibiotic use among outpatients in the United States is inappropriate, and at least 30% of prescriptions provide no therapeutic benefit |
| 2b. Is of high public interest; affects health care decision making, outcomes, or costs for a large proportion of the US population or for a vulnerable population | Yes, this topic affects heath care decisions for a large, vulnerable population and there is not a clearly established indication for treatment. |
| 2c. Represents important uncertainty for decision makers | Yes, this topic represents important uncertainty for decision makers. |
| 2d. Incorporates issues around both clinical benefits and potential clinical harms | This nomination addresses only benefits of treatments for upper respiratory infections. It does not address harms. |
| 2e. Represents high costs due to common use, high unit costs, or high associated costs to consumers, to patients, to health care systems, or to payers | Yes, this topic represents common infections, and increasing medical care costs. |
| 3. Desirability of a New Evidence Review/Duplication | |
| 3. Would not be redundant (i.e., the proposed topic is not already covered by available or soon-to-be available high-quality systematic review by AHRQ or others) | We identified four Cochrane evidence reviews (2012,[5] 2013,[6] 2014,[7] and 2015[8]) and one other evidence review (2012[9]) examining over-the-counter medications for treating symptoms of upper respiratory tract infections (KQ 1). We identified six Cochrane evidence reviews (2012,[10] two in 2013,[11,12] 2014,[13] and two in 2015[14,15]) and three other evidence reviews (2013,[16] 2014,[17] and 2015[18]) examining complementary and alternative medications for treating symptoms of upper respiratory tract infections (KQ 2). Though there are many evidence review covering parts of the scope of the nomination, there is no single evidence review examining the full scope of benefits and harms of OTC and CAM treatments in children and adults with upper respiratory tract infections. |

| 4. Impact of a New Evidence Review | |
|---|---|
| 4a. Is the standard of care unclear (guidelines not available or guidelines inconsistent, indicating an information gap that may be addressed by a new evidence review)? | The standard of care is generally clear, but there are many therapies that can garner the same result. |
| 4b. Is there practice variation (guideline inconsistent with current practice, indicating a potential implementation gap and not best addressed by a new evidence review)? | There is wide practice variation in treating URTIs with OTC or CAM therapies. |
| 5. Primary Research | |
| 5. Effectively utilizes existing research and knowledge by considering:<br>- Adequacy (type and volume) of research for conducting a systematic review<br>- Newly available evidence (particularly for updates or new technologies) | We identified published research for KQ 1 (two in 2011,[19,20] two in 2013,[21,22] two in 2014,[23,24] and one in 2015[25]) as well as eight ongoing clinical trials. We found both published studies (eight in 2012, five in 2013,[35,38,47,55,60] three in 2014,[41,44,49] and nine in 2015[34,36,37,39,40,42,45,46,50]) and two ongoing clinical trials for KQ 2. |
| 6. Value | |
| 6a. The proposed topic exists within a clinical, consumer, or policy-making context that is amenable to evidence-based change | Yes, this topic has high value because the AAPA will use the results to disseminate to its members alternate treatments for URTI, to serve as alternatives to antibiotics. |
| 6b. Identified partner who will use the systematic review to influence practice (such as a guideline or recommendation) | While there is an identified partner (AAPA), it is unlikely that they will use the evidence review to make a clinical guideline or recommendation. The extent of their intention to disseminate is currently unknown. |

*Abbreviations*: AAPA=American Academy of Physician's Assistants; AHRQ=Agency for Healthcare and Research Quality; CAM=Complementary and Alternative Medication; KQ=Key Question; OTC=Over-the-Counter; URTI=Upper Respiratory Tract Infection

## Appendix B. Search Strategy & Results (Feasibility)

| Topic: **OTC and CAM treatment for Upper Respiratory Tract Infections**<br>Date: July 12, 2016<br>Database Searched: MEDLINE (PubMed) | |
|---|---|
| **Concept** | **Search String** |
| Complementary and Alternative Therapies ; Over the Counter Treatments | ("Nonprescription Drugs"[Mesh]) OR "Complementary Therapies"[Mesh] |
| AND | |
| Upper Respiratory Tract Infections | "Respiratory Tract Infections/therapy"[Mesh] |
| NOT | |
| Not Editorials, etc. | ((((((("Letter"[Publication Type]) OR "News"[Publication Type]) OR "Patient Education Handout"[Publication Type]) OR "Comment"[Publication Type]) OR "Editorial"[Publication Type])) OR "Newspaper Article"[Publication Type] |
| Limit to last 5 years, Human, English | Filters: published in the last 5 years; Humans; English |
| **N=195** | |
| Systematic Review<br>N=37 | PubMed subsection "Systematic [sb]" |
| Randomized Controlled Trials<br>N=127 | Cochrane Sensitive Search Strategy for RCT's "(((((((((groups[tiab])) OR (trial[tiab])) OR (randomly[tiab])) OR (drug therapy[sh])) OR (placebo[tiab])) OR (randomized[tiab])) OR (controlled clinical trial[pt])) OR (randomized controlled trial[pt])" |
| Other<br>N=31<br>(#14) | |
| Top Five Medical Journals<br>JAMA<br>NEJM<br>Lancet<br>BMJ<br>Annals of Internal Medicine<br><br>And top infectious disease journal<br>Lancet Infectious Diseases<br><br>BMC Complement Altern Med<br>J Ethnopharmacol<br>PLOS One<br><br>N=19 | [the original search with top five plus Lancet Infectious Diseases yielded no results. Since there are <200 in the whole result sets, you can just review the whole thing. But I also went in and picked some other journals based on my experience with journals and what seemed to be well represented in the literature. I created an alternative hot pile with the three journals: BMC Complementary and Alternative Medicine ; Journal of Ethnopharmacology and PLOS One. But the methods for selecting these journals isn't as reproducible as the method to pick the journals that resulted in none] |

**ClinicalTrials.gov**

By Recruitment Type:
Open Studies Recruiting
1 study found for: Recruiting | Respiratory Tract Infections | "over the counter" OR Complementary OR alternative | Adult, Senior | Studies received from 07/12/2011 to 07/12/2016
https://clinicaltrials.gov/ct2/results?term=&recr=Recruiting&type=&rslt=&age_v=&age=1&age=2&gndr=&cond=Respiratory+Tract+Infections&intr=%22over+the+counter%22+OR+Complementary+OR+alternative&titles=&outc=&spons=&lead=&id=&state1=&cntry1=&state2=&cntry2=&state3=&cntry3=&locn=&rcv_s=07%2F12%2F2011&rcv_e=07%2F12%2F2016&lup_s=&lup_e=

Closed Studies Active, not recruiting
no studies found for: Active, not recruiting | Respiratory Tract Infections | "over the counter" OR Complementary OR alternative | Adult, Senior | Studies received from 07/12/2011 to 07/12/2016

Closed Studies Completed
6 studies found for: Completed | Respiratory Tract Infections | "over the counter" OR Complementary OR alternative | Adult, Senior | Studies received from 07/12/2011 to 07/12/2016
https://clinicaltrials.gov/ct2/results?term=&recr=Completed&type=&rslt=&age_v=&age=1&age=2&gndr=&cond=Respiratory+Tract+Infections&intr=%22over+the+counter%22+OR+Complementary+OR+alternative&titles=&outc=&spons=&lead=&id=&state1=&cntry1=&state2=&cntry2=&state3=&cntry3=&locn=&rcv_s=07%2F12%2F2011&rcv_e=07%2F12%2F2016&lup_s=&lup_e=

| **Topic: OTCs for Respiratory Infection**<br>Date: July 14, 2016<br>Database Searched: MEDLINE (PubMed) | |
|---|---|
| Concept | Search String |
| NSAIDs and the like<br>• Acetaminophen<br>• Ibuprofen | (("Anti-Inflammatory Agents, Non-Steroidal"[Mesh] OR "Anti-Inflammatory Agents, Non-Steroidal" [Pharmacological Action]) OR "Acetaminophen"[Mesh]) OR "Ibuprofen"[Mesh] |
| OR | |
| Anticholinergic<br>• ipratropium<br>• diphenhydramine<br>• chlorpheniramine<br>• brompheniramine | ((((("Cholinergic Antagonists" [Pharmacological Action] OR "Cholinergic Antagonists"[Mesh]) OR "Ipratropium"[Mesh]) OR "Diphenhydramine"[Mesh]) OR "Chlorpheniramine"[Mesh]) OR "Brompheniramine"[Mesh] |
| OR | |
| antitussives<br>• guaifenesin<br>• dextromethorphan | ("Antitussive Agents"[Mesh] OR "Antitussive Agents" [Pharmacological Action]) OR "Guaifenesin"[Mesh] |
| OR | |
| decongestives<br>• pseudoephedrine<br>• oxymetazoline<br>• naphazoline<br>• phenylephrine | ((("Nasal Decongestants"[Mesh] OR "Nasal Decongestants" [Pharmacological Action]) OR "Pseudoephedrine"[Mesh]) OR "Oxymetazoline"[Mesh]) OR "Naphazoline"[Mesh] |
| OR | |
| throat lozenges<br>• amylmetacresol<br>• dichlorobenzyl alcohol | (("zinc gluconate glycine" [Supplementary Concept]) OR "amylmetacresol" [Supplementary Concept]) OR "dichlorobenzyl alcohol" [Supplementary Concept] |
| AND | |
| Upper Respiratory Tract Infections | "Respiratory Tract Infections/therapy"[Mesh] |
| NOT | |
| Not Editorials, etc. | ((((((("Letter"[Publication Type]) OR "News"[Publication Type]) OR "Patient Education Handout"[Publication Type]) OR "Comment"[Publication Type]) OR "Editorial"[Publication Type])) OR "Newspaper Article"[Publication Type] |
| Limit to last 5 years Human English | Filters activated: published in the last 5 years, Humans, English |
| N=210 | |
| Systematic Review<br>N=0 | PubMed subsection “Systematic [sb]” |

| | |
|---|---|
| Randomized Controlled Trials<br>N=179 | Cochrane Sensitive Search Strategy for RCT's<br>"(((((((groups[tiab])) OR (trial[tiab])) OR (randomly[tiab])) OR (drug therapy[sh])) OR (placebo[tiab])) OR (randomized[tiab])) OR (controlled clinical trial[pt])) OR (randomized controlled trial[pt])" |
| Other<br>N=31 | |
| General Medicine Journals | JAMA<br>New England Journal of Medicine<br>Lancet<br>BMJ<br>Annals of Internal Medicine |
| OR | |
| Topic Specific Journals | BMC Infectious Diseases<br>PLOS Medicine<br>Annals of Family Medicine<br>BMC Family Practice<br>npj Primary Care Respiratory Medicine<br>Lancet Respiratory Medicine |
| N=6 | |

**ClinicalTrials.gov**

Open - Recruiting
15 studies found for: Recruiting | Respiratory Tract Infections | Anti-Inflammatory Agents, Non-Steroidal OR Cholinergic Antagonists OR Antitussive Agents OR Nasal Decongestants OR lozenge | Studies received from 07/13/2011 to 07/13/2016
https://clinicaltrials.gov/ct2/results?term=&recr=Recruiting&type=&rslt=&age_v=&gndr=&cond=Respiratory+Tract+Infections&intr=Anti-Inflammatory+Agents%2C+Non-Steroidal+OR+Cholinergic+Antagonists+OR+Antitussive+Agents+OR+Nasal+Decongestants+OR+lozenge&titles=&outc=&spons=&lead=&id=&state1=&cntry1=&state2=&cntry2=&state3=&cntry3=&locn=&rcv_s=07%2F13%2F2011&rcv_e=07%2F13%2F2016&lup_s=&lup_e=

Closed - Active, not recruiting
2 studies found for: Active, not recruiting | Respiratory Tract Infections | Anti-Inflammatory Agents, Non-Steroidal OR Cholinergic Antagonists OR Antitussive Agents OR Nasal Decongestants OR lozenge | Studies received from 07/13/2011 to 07/13/2016
https://clinicaltrials.gov/ct2/results?term=&recr=Active%2C+not+recruiting&type=&rslt=&age_v=&gndr=&cond=Respiratory+Tract+Infections&intr=Anti-Inflammatory+Agents%2C+Non-Steroidal+OR+Cholinergic+Antagonists+OR+Antitussive+Agents+OR+Nasal+Decongestants+OR+lozenge&titles=&outc=&spons=&lead=&id=&state1=&cntry1=&state2=&cntry2=&state3=&cntry3=&locn=&rcv_s=07%2F13%2F2011&rcv_e=07%2F13%2F2016&lup_s=&lup_e=

Closed – Completed
45 studies found for: Completed | Respiratory Tract Infections | Anti-Inflammatory Agents, Non-Steroidal OR Cholinergic Antagonists OR Antitussive Agents OR Nasal Decongestants OR lozenge | Studies received from 07/13/2011 to 07/13/2016
https://clinicaltrials.gov/ct2/results?term=&recr=Completed&type=&rslt=&age_v=&gndr=&cond=Respiratory+Tract+Infections&intr=Anti-Inflammatory+Agents%2C+Non-Steroidal+OR+Cholinergic+Antagonists+OR+Antitussive+Agents+OR+Nasal+Decongestants+OR+lozenge&titles=&outc=&spons=&lead=&id=&state1=&cntry1=&state2=&cntry2=&state3=&cntry3=&locn=&rcv_s=07%2F13%2F2011&rcv_e=07%2F13%2F2016&lup_s=&lup_e=